In addition to the Commercial generation, the pre-commercial generation from Narora 2 was about 35 MUs during 1991-92 and 89 MUs during 1992-93. The pre-commercial generation from Kakrapar-1 was about 35 MUs during 1993-94.

(b) and (c) The decline in total generation in 1993-94 is mainly due to the Narora fire incident and the series of inservice inspections of indigenous turbines of Nuclear Power Stations as a consequence thereof and being the first year of commercial operation of Kakrapar-1.

(d) To increase the capacity of power generation efforts are on to improve the capacity utilisation and to expedite construction of ongoing projects to avoid time overruns. Setting up of future projects will be consistent with availabiilty of funds.

(e) Rajasthan-2 has in general operated well and it has achieved a life time average capacity utilisation of around 60 per cent from 1.4.81 till 31.3.94. In regard to Rajasthan-1, the first Pressurised Heavy Water Reactor unit (PHWR), while a minor but difficult heavy water leak from the Over Pressure Relief Device (OPRD) mounted on the calandria mainly contributed to the reduced availability in the recent years, earlier the reason was a light water leak in the south end-shield and the consequent efforts in developing and implementing a repair procedure.

(f) The present rated power generation capacity of the units of Rajasthan Atomic Power Station in operation are 100 MWe and 200 MWe in respect of unit-1 and unit-2 respectively. Presently two additional units each of 220 MWe capacity i.e. Rajasthan 3&4 (2X220 MWe) are under construction. The approved outlay for this project during the 8th five year plan (1992—97) is Rs. 1000 Crore.

Damage to Kaiga Nuclear Power Plant

1336. SHRI JOHN. F. FERNANDES: Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that Nuclear Power Plant which is under construction at Kaiga, Karwar barely 30 Km. from Goa, suffered damage in collapse of its dome which is under construction;

(b) whether the contractor, entrusted with the construction work, have capability to build such projects on international standards; and

(c) what safety measures are being taken to see that the construction is not sub-standard so as to avoid major nuclear disaster after the commissioning of the project?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI BHUVNESH CHATURVEDI): (a) A portion of concrete from the under surface of the inner containment dome of Unit-1 of the Kaiga Atomic Power Project got detached and fell down during pre-stressing operations.

(b) Yes, Sir. The civil construction work for the reactor building was entrusted to a well known and reputed contractor who had earlier done construction work for the Madras Atomic Power Station. The construction work at Kaiga is being carried out to stipulated and relevant standards.

(c) The entire containment structure is througly tested, inspected and checked before criticality of reactor is authorised. Therefore the question of a failure of the dome after commissioning of the project does not arise. As part of the Technical Specifications, it is also mandatory to carry out tests to ensure integrity of the containment at specified intervals during operation. Operation of nuclear power plants is governed by a set of Technical Specifications and is

subject to comprehensive safety reviews. The Atomic Energy Regulatory Board (AERB) reviews the safety aspects of operating nuclear power plants from time to time before authorising continued operation.

Finding of Kaiga Nuclear Accident

1337. SHRI TRILOKI NATH CHATURVEDI:

DR. MURLI MANOHAR JOSHI:

Will the *PRIME MINISTER* be pleased to state:

(a) whether Government have completed the enquiry of the collapse of concrete dome of Kaiga Nuclear Power Plant and if so, what are the findings and what is the estimated loss;

(b) when was the plant originally scheduled to be completed and by when it is now expected to be commissioned;

(c) what was the original cost of the project and what will be the revised cost; and

(d) whether AERB is systematically going into the safety measures of all the atomic power plants, if so, what are the findings and if not, whether Government propose to undertake such a study and if so, by when?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI BHUVNESH CHATURVEDI): (a) The Committees of Experts constituted by Nuclear Power Corporation of India Limited (NPCIL) and Atomic Energy Regulatory Board (AERB) in connection with failing of a inner portion of concrete from the under surface of inner containment dome of reactor building of Kaiga Unit-1 are yet to submit their reports. The indicative loss on account of the incident is of the order of Rs. 2.5 Crore. The exact loss due to this incident and the cost of reconstruction of the dome will be known after the Committees inquiring into the causes for the failure of the dome submit their reports.

(b) Unit-1 of Kaiga Plant was originally scheduled to achieve criticality in June 1995 and Unit-2 in December, 1995. After a mid term review the Schedule was revised to June 1996 and December 1996 respectively. No revision in the schedules is envisaged as of now due to the dome incident as rehabilitation of the dome is proposed to be taken up simultaneously with the other works.

(c) The original cost of the project as sanctioned in June 1987 which did not contain the element of Interest During Construction (IDC) is Rs. 730.72 Crore. The revised cost estimates for the project have been proposed at Rs. 2275 Crore including a sum of Rs. 685 Crore being the IDC. There is no proposal to make a review of the cost estimates on account of the dome incident which took place on May 13, 1994.

(d) The AERB has set up a multitier review procedure to enforce safety measures in all the atomic power plants. The radiation doses to workers in the nuclear power plants are well within the limits stipulated by the AERB.

These does not measured by the Health Physics Unit attached to each power station. Regular reports from these units are received by the AERB. The radioactive releases from the nuclear power stations are monitored regularly to ensure that they are within permissible limits.

Environmental Survey Laboratories outside the exclusion zone of each nuclear power station routinely collect and measure the radioactivity concerntrations in samples of food, air, water upto 30 kms. from the power station. The radiation dose to population in the vicinity of